

What is claimed is:

1. A semiconductor device comprising:

5 a semiconductor chip having a first main surface
formed with electrode pads and a second main surface
opposite to the first main surface;

a mounting substrate having a chip mounting surface
which has an area wider than an area of the second main
surface and is opposed face to face with the second main
10 surface, said mounting substrate having the semiconductor
chip mounted thereon;

an encapsulating layer formed on the chip mounting
surface so as to cover the semiconductor chip;

wiring patterns electrically connected to the
15 electrode pads and extending from above a first region
located above the semiconductor chip, of a surface region
of the encapsulating layer to above a second region that
surrounds the first region; and

external terminals disposed on the surfaces of the
20 wiring patterns located on the second region,

wherein trenches extending between a pair of
opposite side surfaces of the mounting substrate are
defined in the chip mounting surface of the mounting
substrate, and the encapsulating layer is formed in the
25 trenches.

2. A semiconductor device according to claim 1,

wherein the semiconductor chip is mounted on the mounting substrate along the trenches.

3. A semiconductor device according to claim 1,
5 wherein the semiconductor chip is mounted on the mounting substrate in alignment with the trenches.

4. A semiconductor device according to claim 1,
wherein the semiconductor chip is mounted on the mounting
10 substrate with being spaced a predetermined distance from the trenches respectively.

5. A semiconductor device according to claim 1,
wherein the side surfaces of the mounting substrate and
15 the encapsulating layer are cut sections.

6. A semiconductor device according to claim 1,
wherein the trenches consist of first trenches extending
between the pair of opposite side surfaces of the
20 mounting substrate and second trenches extending between the other pair of opposite side surfaces of the mounting substrate.

7. A semiconductor device according to claim 6,
25 wherein the corner of the semiconductor chip is mounted in alignment with the corner of the chip mounting surface, which is formed by causing the first and second trenches

to intersect.

8. A semiconductor device according to claim 6,
wherein the semiconductor chip is mounted with being
5 shifted in parallel with respect to the first and second
trenches respectively.

9. A semiconductor device comprising:

a semiconductor chip having a first main surface
10 formed with electrode pads and a second main surface
opposite to the first main surface;

a mounting substrate having a chip mounting surface
which has an area wider than an area of the second main
surface and is opposed face to face with the second main
15 surface, said mounting substrate having the semiconductor
chip mounted thereon;

an encapsulating layer formed on the chip mounting
surface so as to cover the semiconductor chip;

wiring patterns electrically connected to the
20 electrode pads and extending from above a first region
located above the semiconductor chip, of a surface region
of the encapsulating layer to above a second region that
surrounds the first region; and

external terminals disposed on the surfaces of the
25 wiring patterns located on the second region,

wherein protruding portions extending between a
pair of opposite side surfaces of the mounting substrate

are defined in the chip mounting surface of the mounting substrate, and the protruding portions are covered with the encapsulating layer.